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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/831,665	09/15/2001	Brian Stewart Hoyle	7418-2	7030

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EXAMINER

WONG, ALBERT KANG

ART UNIT	PAPER NUMBER
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2635

DATE MAILED: 03/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/831,665

Applicant(s)

HOYLE ET AL.

Examiner

Albert K Wong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 23-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 23-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

1. This Office action is in response to the amendment filed December 22, 2003. Claims 1-14 and 23-29 are pending. Claims 15-22 have been cancelled and new claims 23-29 have been entered. Claim 1 has been amended as requested.

Prior rejections maintained

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-10 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spillman in view of Tokyo Gas Co. (08233844).

Regarding claim 1, Spillman teaches a body (item A) which may be a vessel that includes a sensor (item 14) with conductors for connecting the sensor to an output through which signals are transmitted which are representative of the conditions within the vessel. Spillman teaches that a sensor array is contemplated but does not explicitly teach a sheet. Tokyo Gas Co. (08233844) teaches a array of sensor with conductors for measuring temperature in sheet form. It would have been obvious to one of ordinary skill in the art that any suitable sensor maybe combined with the communication device in Spillman to generate a signal indicative of the temperature within the vessel. A sensor array provides an integrated unit that is able to sense data over a wide area and still be easily attached to the body.

Regarding claim 2, the array in Tokyo is laminar with conductors on an insulating substrate.

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Regarding claim 3, it would have been obvious to include an insulating layer to protect the conductive elements from being shorted out.

Regarding claims 4 and 6, the sheet is flexible.

Regarding claim 5, it would have been obvious to include an insulating layer to protect the sensors from being shorted out.

Regarding claim 7, see Figure in Tokyo.

Regarding claim 8, the first monitoring unit is shown in Figure 9B and the second monitoring unit is described in the specification but not explicitly shown.

Regarding claims 9-10, see col. 3 of Spillman.

Regarding claim 14, the transmission signals in Spillman are radio signal. It is disclosed that the vessel may be carbon fiber which would be transparent to radio waves.

3. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spillman and Tokyo as applied to claim 8 above, and further in view of Sonderegger.

Regarding claim 11, Spillman does not teach a window or the transmission of optical signals. Sonderegger teaches a telemetry system with a first and second unit like Spillman that uses a sensor array. The system transmits data through the vessel wall using optical transmission signals. It would have been obvious to one of ordinary skill in the art that various transmission method may be used to transmit signals through bodies. Optical signals allows higher bandwidths and are not sensitive to radio interference.

Regarding claim 12, Sonderegger teaches the use of a laser in col. 3.

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Regarding claim 13, Sonderegger teaches the use of light but does not specify infra-red. One of ordinary skill in the art would know that infra-red is often used to transmit optical signals. It would have been obvious to use infra-red to create a simple cheap system.

New rejections

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 23-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spillman in view of Tokyo Gas Co. (08233844).

Regarding claim 23, a sensor array is merely a plurality of sensor. It would have been obvious that different conditions would exist at the different sensor location. For example, the fluid level may affect one sensor but not another sensor in the array. It would have been obvious that the differences between sensors of the array is indicative of the conditions of the environment. It is further noted that the limitation recited is a part of the use of an apparatus claim. Thus, the limitation is merely reciting a particular use.

Regarding claim 24, an sensor creates an electrical signal which is an electrical property.

Regarding claim 25, as evidenced by the lack of disclosure within the specification, a sensor array with transmission and reception capability is considered conventional. Spillman teaches an sensor within a vessel and suggests that the sensor may be any conventional type. Tokyo teaches a sensor array. As shown above, it would have been obvious to combine the

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teachings. Thus, it would have been obvious to use a sensor array with transmission and reception capability for its known function.

Regarding claim 26, Spillman teaches a sensor array in a vessel with a first and second monitoring means disposed on the interior and exterior of the vessel for transmission of data through the vessel wall. Spillman does not teach a plurality of sensors on a flexible, flat substrate. However, Spillman suggests that any suitable sensor may be used within the vessel. It would have been obvious to one of ordinary skill in the art to combine the teachings since a flexible sheet provides the obvious advantage of allowing the sensor array to conform with the vessel wall.

Regarding claim 27, it would have been obvious to locate a sensor where it can detect the desired physical characteristics. To locate a sensor away from the field of interest would defeat its purpose.

Regarding claims 28-29, these are the method equivalent of claims 26 and 27. The teaching of the apparatus suggests the steps of using the apparatus. It would have been obvious to use the apparatus in its intended manner.

6. Claim 26 is objected to because of the following informalities: line 6 is grammatically incorrect. Appropriate correction is required.

Response to Remarks

7. Applicant's arguments have been considered but are not deemed persuasive. The changes are merely made in the preamble which has not been given patentable weight. Thus, applicants have argued limitations that are not present in the claims.

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8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert K Wong whose telephone number is 703-305-8884. The examiner can normally be reached on M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Horabik can be reached on 703-305-4704. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Albert K. Wong
March 7, 2004

MICHAEL HORABIK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

